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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,322	10/25/2001	Ilona Busenbender	GP-300791	9328
7590 02/05/2004			EXAMINER	
Cary W. Brooks General Motors Corp. - Legal Staff Mail Code 482-C23-B21 PO Box 300 Detroit, MI 48265-3000			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	
DATE MAILED: 02/05/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/004,322

Applicant(s)

BUSENBENDER, ILONA

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-14 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 8 is objected to because of the following informalities: at the end of the claim, a period is missing. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4-6, 9-11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Rowlette (U.S. Patent 5,334,464). Regarding claim 1, the reference is directed to a bipolar plate which is useful for an electrochemical cell (see abstract). Regarding claims 1 and 13, the plate comprises an iron-containing sheet metal core (12) and a protective layer on the top surface (see Fig. 5; col. 6, line 9). Regarding claims 1 and 6, the protective coating comprises a layer (18) of tin oxide (see col. 5, line 56). Regarding claims 1, 2, 4, and 10, the tin oxide is doped with fluorine to ensure conductivity (see col. 9, line 8). Regarding claims 5 and 9, the protective coating comprises two layers (18, 16a) (see Fig. 5). Regarding claim 14, the entire thickness of the plate is 0.142 mm (obtained by adding 0.005 inches, 0.0005 inches, 20 microinches, and 2 microns; see col. 11, line 24 et seq). Regarding claim 11, which recites that

the protective coating is deposited in a vacuum chamber, this is a process limitation that does not appear to further limit the structure of the claimed protective layer. Accordingly, such limitation in a product claim is given little patentable weight (MPEP §2112).

4. Claims 1, 3, 5, 9, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hwang et al (U.S. Patent 6,090,228). Regarding claim 1, the reference is directed to a bipolar plate which is useful for an electrochemical cell (see abstract). Regarding claims 1 and 13, the plate comprises an iron-containing sheet metal core (50) and a protective layer on the top surface (see Fig. 3B; col. 2, line 42). Regarding claims 1 and 6, the protective coating comprises a layer (60) of aluminum oxide (see Fig. 3B; col. 3, line 64). Regarding claims 3, 5, and 9, the protective coating comprises an additional layer (53) of elemental aluminum underneath the aluminum oxide (see col. 3, line 54). Regarding claim 11, the aluminum may be deposited in a vacuum chamber (see col. 4, line 48).

Thus, the instant claims are anticipated.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rowlette.

The reference is applied to claims 1, 2, 4-6, 9-11, 13, and 14 for the reasons stated above.

Regarding claim 12, the reference teaches in column 11, line 32 that the tin oxide layer is 2 microns thick.

However, the reference does not expressly teach that the layer is between 1 monolayer and 1 micron thick, as recited in claim 12.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to reduce the thickness of the tin oxide layer of Rowlette so as to fall within the claimed range. In column 11, line 9, the reference teaches that "the optimum combination of materials, coatings, and thickness must thus be selected for each application." The artisan would have motivation to make the thickness of the tin oxide layer as thin as possible in order to achieve a material and weight savings. Thus, the instantly claimed range of between 1 monolayer and 1 micron thick would be rendered obvious to the skilled artisan.

*Allowable Subject Matter*

7. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 7 and 8 recite, among other features, that a dopant layer is present between two layers of metal oxide. The prior art of record does not teach or fairly suggest this subject matter. Rowlette teaches a layer of lead (16a) and a layer of nickel underneath the tin oxide layer (18), but does not fairly suggest that the lead or nickel is in the form of an oxide. Similarly, Hwang et al. teach a nickel layer (52) below the aluminum layer (53) and aluminum oxide layer (60), but do not fairly suggest that the nickel is in the form of an oxide. Accordingly, claims 7 and 8 contain allowable subject matter.

*Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

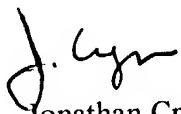
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.



Jonathan Crepeau

Patent Examiner

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January 30, 2004